

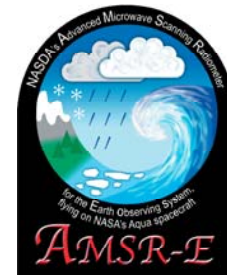
AMSRE Team Leader Science Computing Facility Science Software

3 August 2004

*Dawn Conway, University of Alabama in Huntsville,
AMSRE Lead Software Engineer*



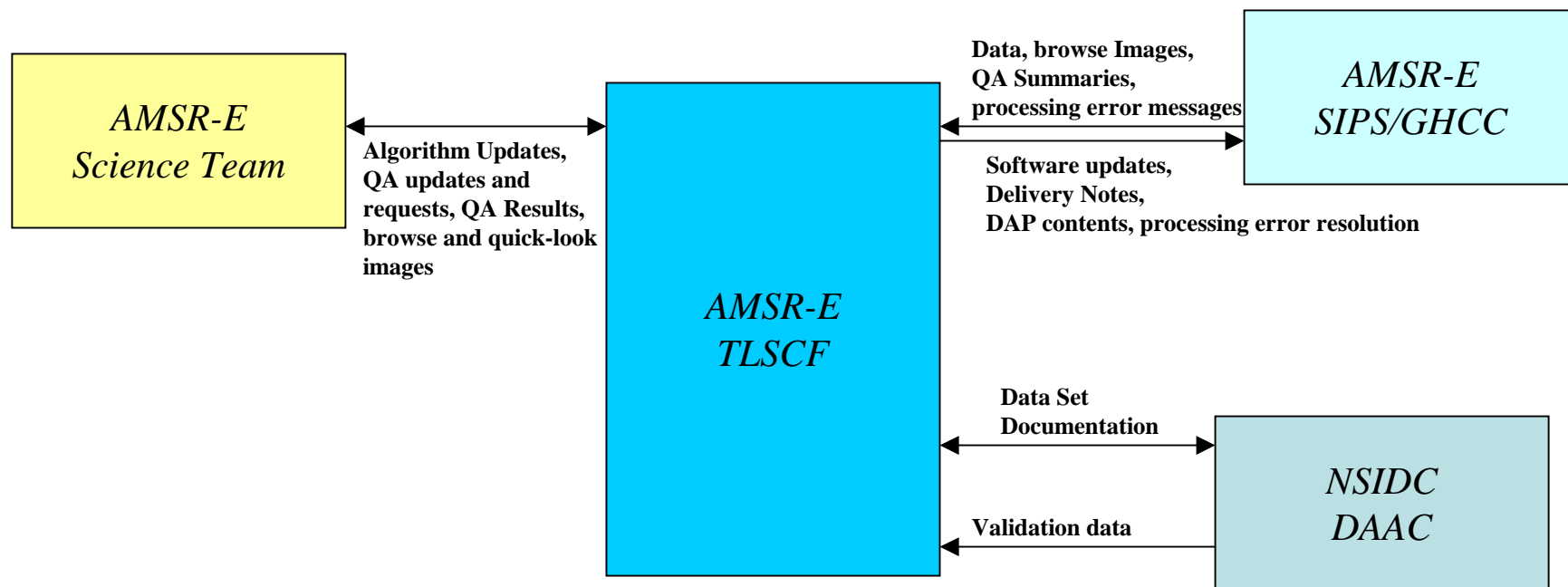
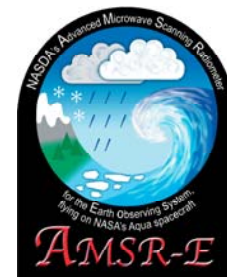
Overview of TLSCF Tasks



- Integrate and test science software
- Deliver operational software and documentation to SIPS
- Maintain metadata and QA software
- Maintain AMSR-E Science Team Web page
- Respond to science software anomalies that occur during processing
- Respond to specific QA requests from the science team

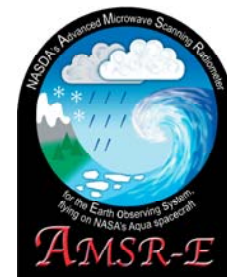


Data Flow for the TLSCF





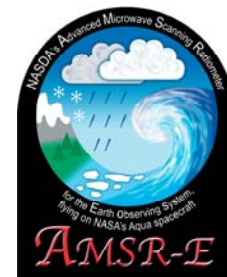
Data Availability



- Currently, “Beta” data is being processed at the SIPS
 - NASDA calibration
 - NASDA geolocation fields
 - Archived at NSIDC; available near real time
 - Available to the public
 - All Delivered Algorithm Packages for current versions will be delivered to the SIPS by 1 September 2004 for current beta versions
- “Beta” will change to “Validated” as each algorithm team validates their products



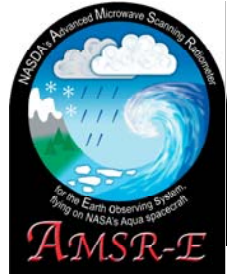
Science Software Schedule



- L2A version B02
 - Based on 01 October 2004 JAXA L1A public release
 - Sample L1A files expected mid-August at RSS
 - L2A software delivery to TLSCF no later than 1 September 2004
 - For all changes affecting the L2A reader used in L2B and L3 processing
 - Change of data type to position-in-orbit
 - Variable name changes
 - L2A B02 processing begins on 01 October 2004 (in conjunction with the beginning of the new L1A processing)



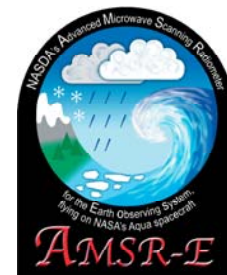
Science Software Schedule



- L2B & L3 updates are made quarterly
 - Next update due to TLSCF on 1 September 2004
 - This update will be reflected in the SIPS processing no later than 1 December 2004
- Reprocessing of all products
 - Begins 1 March 2005
 - Will use algorithm versions delivered to the TLSCF by 1 December 2004



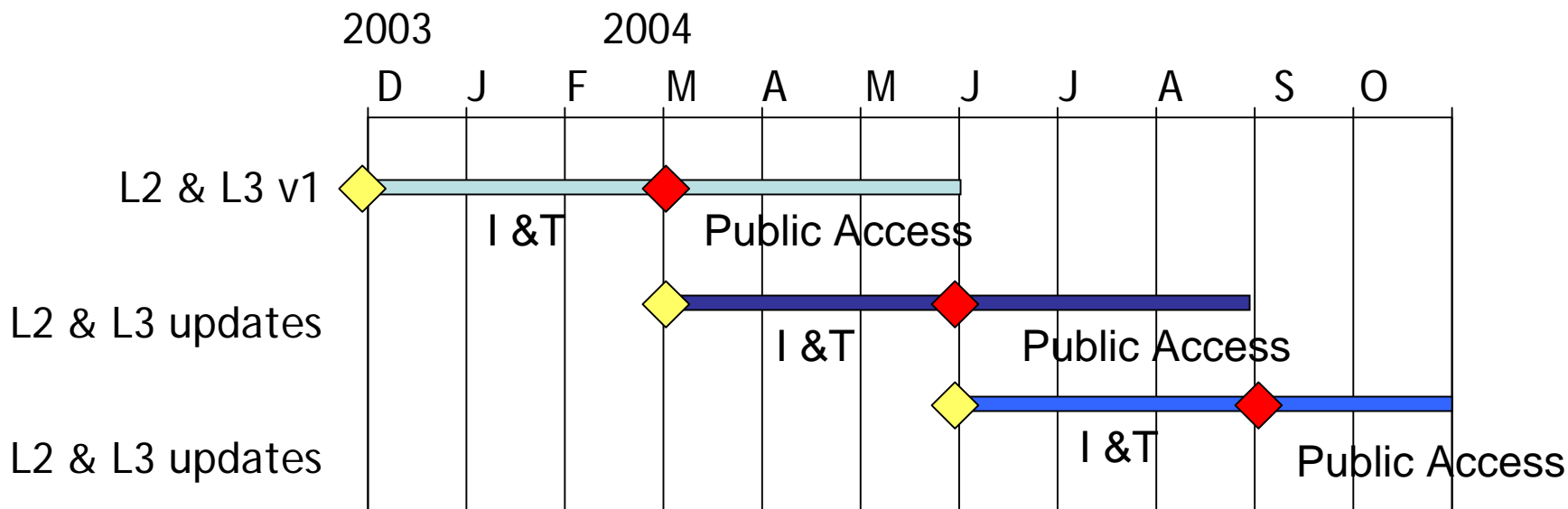
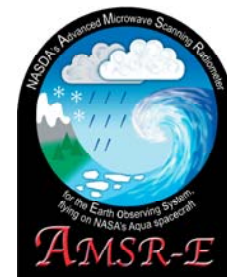
Science Software Integration & Test Status



Data Product	Current SIPS Processing Version	Current TLSCF Integration Version; Operational by 01 Sept	Pending Version	
			From Algorithm Team to TLSCF due by 01 Sept	TLSCF Updates to accommodate L2A changes; Operational by 01 Oct
Level 2A Brightness Temperatures	B01		B02 (contingent on L1A update)	N/A
Level 2 Ocean	B01		B02	B02
Level 2 Land	B01			B02
Level 2 Rain	B02	B03		B04
Level 3 Sea Ice	B02	B03		B04
Level 3 Ocean	B01			B02
Level 3 Land	B01			B02
Level 3 Snow	B02	B03		B04
Level 3 Rain	B02	B03		B04



Product Release Schedule

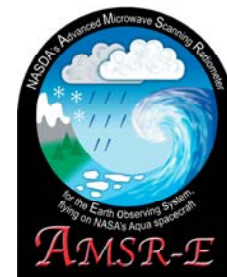


Science Software freeze at TLSCF; no subsequent updates implemented until the next quarter

L2 & L3 Public Release



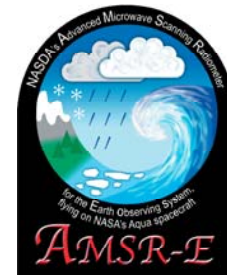
AMSR-E Browse Images



- Archived at NSIDC
- HDF-EOS raster images (ECS requirement) and .png
- HDF no larger than 1 MB (ECS requirement)
- Available via ftp from GHRC SIPS
- Soon to be available on the AMSR-E web page
<http://weather.msfc.nasa.gov/AMSR/>
- Part of Quality Assessment



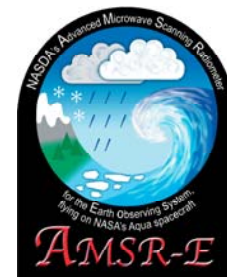
QA Summaries



- Generated during processing from the operational QA routines
- Archived at NSIDC
- Soon to be available on the AMSR-E web page
- Routines are created and maintained by the TLSCF
- Content of QA summaries
 - Vary by product
 - Determined by algorithm team and TLSCF
 - Subject to change without notice



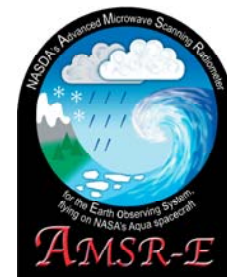
Issues & Topics for Discussion



- HDF 4.2 Release: TLSCF is testing
- Which algorithms are planning on using the edge pixels (those outside the middle 196)?
- Interoperability:
 - Could NSIDC include description of data available from JAXA instead of just a link
 - Dates
 - Data content overview
 - Access
 - Cost ?
 - Testing scheduled with JAXA?



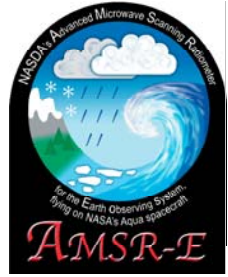
Issues & Topics for Discussion (continued)



- What is the criteria for “validated” L2A data?
 - When should we expect validated L2A data?
 - How will the demise of the TMI affect the L2A processing?
- When should we expect other products to be validated?
- Proposed (Elena) AMSR-E user workshop
 - After 1 March 2005 release
 - At NSIDC?
 - Invite everyone interested in AMSR / AMSR-E data



- Backup Slides





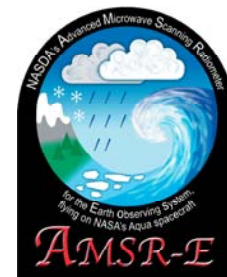
Delivered Algorithm Packages



- What is a DAP?
 - A DAP is a package containing software and documentation sufficient to allow a user to recreate the associated standard product
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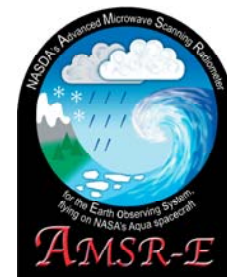
Delivered Algorithm Packages (continued)



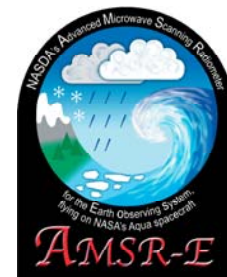
- DAP Contents
 - Science software package delivered to SIPS by TLSCF
 - Science software
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 - Delivery notes
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Delivered Algorithm Packages (continued)



- 1 DAP per PGE
- DAP version = file version
- DAP effective date
 - Initial production date
 - May be earlier than current date (implying reprocessing)
 - Coordinated with SIPS, NSIDC
- DAP generated by SIPS upon software update delivery from TLSCF
- DAP delivered to NSIDC by SIPS
- Available to users from NSIDC



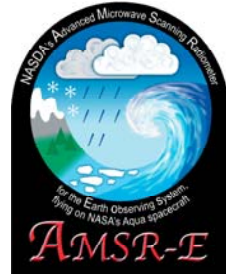
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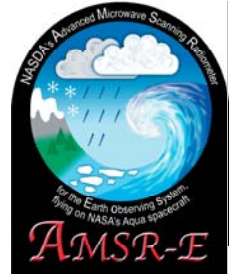
AMSR-E TLSCF



- Description of AMSR-E Standard Data Products
- Overview of TLSCF Tasks
- Data Availability
- TLSCF data flow
- Science software procedures
- Science software integration & test status
- File Naming Convention
- Delivered Algorithm Packages
- Browse & quick-look images
- Metadata
- Quality Assessment
- Web pages
- Schedule
- Issues
- Coming Attractions



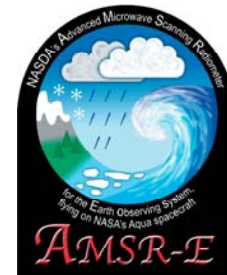
AMSR-E Level 2 Standard Products



Short Name	Long Name	Volume
AE_L2A	AMSR-E/Aqua L2A Global Swath Spatially-Resampled Brightness Temperatures	2.5 GB/day
AE_Ocean	AMSR-E/ Aqua L2B Global Swath Ocean Products derived from Wentz Algorithm	277 MB/day
AE_Land	AMSR-E/ Aqua L2B Surface Soil Moisture, Ancillary Params, & QC EASE_Grids	15 MB/day
AE_Rain	AMSR-E/ Aqua L2B Global Swath Rain Rate/Type GSFC Profiling algorithm	501 MB /day



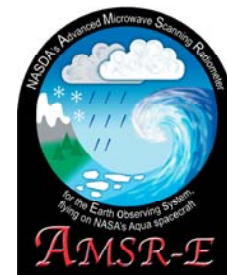
AMSR-E Level 3 Daily Products



Short Name	Long Name	Volume
AE_DyOcn	AMSR-E/Aqua global ocean Level 3 daily products are on .25 x .25 degree ascending and descending grids. Products are generated using the Level 2B ocean products as input.	15 MB/day
AE_DySno	AMSR-E/Aqua Level 3 daily products are of global snow water equivalent on EASE-Grids.	2 MB/day
AE_SI6	AMSR-E/Aqua Level 3 products at 6.25 km are of 89.0 GHz brightness temperatures on polar stereographic grids. Tb's are daily averages, daily ascending averages, and daily descending averages.	46 MB/day



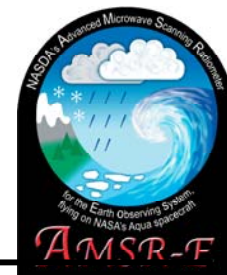
AMSR-E Level 3 Daily Products (continued)



Short Name	Long Name	Volume
AE_SI12	AMSR-E/Aqua Level 3 products at 12.5 km are of sea ice concentration, snow depth over ice, & 18 - 89.0 GHz Tb's on polar stereo grids. The sea ice con and Tb's are daily averages, daily asc. & desc.	53 MB/day
AE_SI25	AMSR-E/Aqua Level 3 products at 25 km are of sea ice concentration, sea ice temperature, 6.9 - 89.0 GHz Tb's on polar stereographic grids. Sea ice con, sea ice temp, and Tb's are daily averages, daily ascending averages, and daily descending averages.	20 MB/day
AE_Land3	AMSR-E/Aqua Level 3 global daily surface soil moisture with QC parameters (vegetation water content, surface temp), & Tb's are generated on a nominal 25-km equal area earth grid by time-compositing the Level 2B parameters separately for ascending and descending passes.	65 MB/day



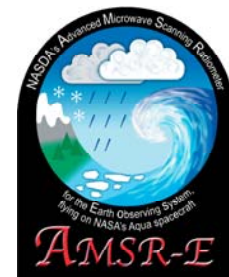
AMSR-E Level 3 5-day, Weekly, & Monthly Products



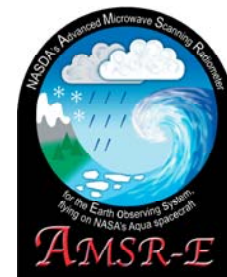
Short Name	Long Name	Volume
AE_5DSno	AMSR-E/Aqua Level 3 5-day product is a 5-day running mean of global snow water equivalent on EASE-Grids.	2 MB/ 5-day
AE_WkOcn	AMSR-E/Aqua global ocean Level 3 weekly products are on .25 x .25 degree ascending and descending grids. Products are generated using the Level 2B ocean products as input.	12 MB/week
AE_MoSno	AMSR-E/Aqua Level 3 product is of monthly global snow water equivalent on EASE-Grids.	2 MB/month
AE_MoOcn	AMSR-E/Aqua global ocean Level 3 monthly products are on .25 x .25 degree ascending and descending grids. Products are generated using the Level 2B ocean products as input.	12 MB/month
AE_RnGd	AMSR-E/Aqua monthly rainfall accumulations are on two 5 x 5 degree grids, separate for land & ocean. The ocean product uses Level 2A brightness temperatures as input; the land product uses GPROF Level 2B rainfall as input.	0.02 MB/month



Overview of TLSCF Tasks



- Integrate and test science software
- Deliver operational software and documentation to SIPS
- Maintain metadata and QA software
- Maintain list of science data anomalies
- Maintain AMSR-E Web page
- Respond to specific QA requests from the science team
- Configuration management of production software is coordinated with SIPS

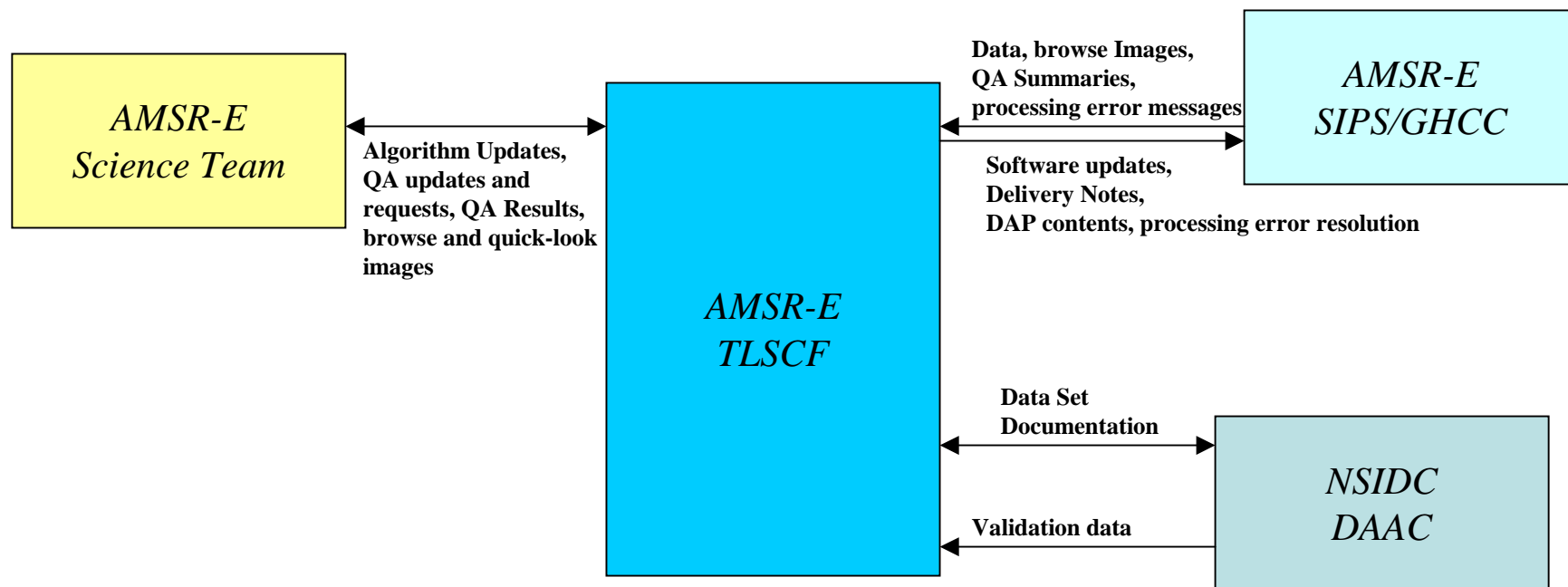
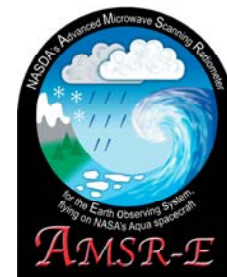


Data Availability

- Standard processing of Level 2A Beta version 1 began September 1, 2003
- Standard processing of Level 2B & 3 Beta version 1 will begin March 1, 2004
- “Beta” Data
 - NASDA calibration
 - NASDA geolocation fields
 - Archived at NSIDC; available near real time
 - Available to the public
 - Delivered Algorithm Packages available to public

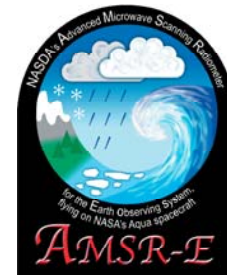


Data Flow for the TLSCF





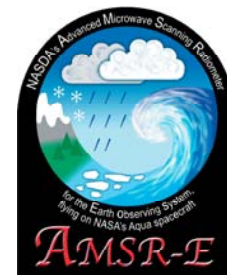
TLSCF Science Software Procedures



- Science software deliveries from science team members to the TLSCF are required to
 - be updated from the latest operational software package
 - run as stand-alone processes on the SCF hardware
 - meet ECS requirements concerning format (HDF-EOS)
 - be accompanied by delivery notes documenting science software changes
 - be accompanied by test input/output data



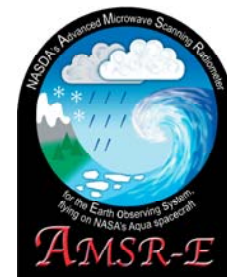
TLSCF Science Software Procedures (continued)



- At the TLSCF
 - all science software is compiled and run by a TLSCF software team member and the output from the run is compared to output supplied by the science algorithm team
 - all science software is modified and tested for conformity in the operational environment
 - metadata and QA routines are designed (updated) and implemented as needed



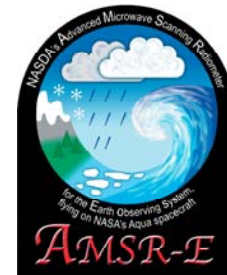
TLSCF Science Software Procedures (continued)



- All software deliveries to the SIPS
 - include science algorithm routines, metadata creation routines, and operational QA routines
 - are accompanied by delivery notes documenting hardware configurations, OS versions, compiler versions, known limitations, required run times, required inputs, and sample output files
- At the SIPS
 - Integration with processing automation scripts (e.g. pass, daily, weekly, monthly)
 - DAP creation



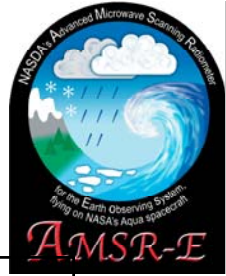
Science Software Integration & Test Status



Data Product	S/W Version at SIPS	Latest Delivery to SIPS
Level 2A Brightness Temperatures	V1	2003-08-28
Level 2 Ocean	v0	2003-06-15
Level 2 Land	v0	2003-06-15
Level 2 Rain	v0	2003-07-31
Level 3 Sea Ice	v0	2003-09-11
Level 3 Ocean	v0	2003-06-15
Level 3 Land	v0	2003-06-15
Level 3 Snow	v0	2003-06-15
Level 3 Rain	v0	2003-06-15



AMSR-E File Naming Conventions

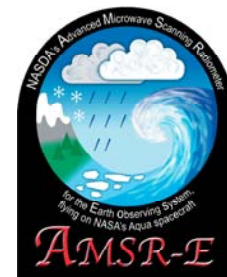


AMSR-E Short Name	File Naming Convention
AE_L2A	AMSR_E_L2A_BrightnessTemperatures_X##_yyyymmddhhmm.hdf
AE_Ocean	AMSR_E_L2_Ocean_X##_yyyymmddhhmm.hdf
AE_Land	AMSR_E_L2_Land_X##_yyyymmddhhmm.hdf
AE_Rain	AMSR_E_L2_Rain_X##_yyyymmddhhmm.hdf
AE_RnGd	AMSR_E_L3_RainGrid_X##_yyyymmddhhmm.hdf
AE_DyOcn	AMSR_E_L3_DailyOcean_X##_yyyymmddhhmm.hdf
AE_WkOcn	AMSR_E_L3_WeeklyOcean_X##_yyyymmddhhmm.hdf
AE_MoOcn	AMSR_E_L3_MonthlyOcean_X##_yyyymmddhhmm.hdf
AE_DySno	AMSR_E_L3_DailySnow_X##_yyyymmddhhmm.hdf
AE_5DSno	AMSR_E_L3_5DaySnow_X##_yyyymmddhhmm.hdf
AE_MoSno	AMSR_E_L3_MonthlySnow_X##_yyyymmddhhmm.hdf
AE_SI6	AMSR_E_L3_SeaIce6km_X##_yyyymmddhhmm.hdf
AE_SI12	AMSR_E_L3_SeaIce12km_X##_yyyymmddhhmm.hdf
AE_SI25	AMSR_E_L3_SeaIce25km_X##_yyyymmddhhmm.hdf
AE_Land3	AMSR_E_L3_DailyLand_X##_yyyymmddhhmm.hdf

where yyyy indicates year, mm month, dd day, hh hour, mm minutes, X is the product maturity indicator, and ## is the version number. All times are associated with the first scan of the granule.



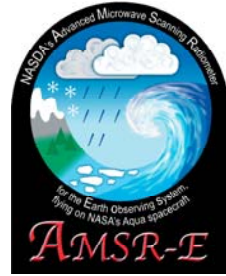
File Naming Conventions (continued)



- Product Maturity Indicator
 - Valid values are “P”, “B”, and “V” - for preliminary (near real time), beta, and validated, respectively
 - Preliminary products
 - non-standard near real time preliminary data products available at NSIDC through their Web based non-ECS system
 - only available until the corresponding standard products are ingested at NSIDC
 - Beta products use NASDA calibrated data & geolocations
 - Will graduate to “validated (V)” when the science software has been tested and the algorithm validated using the official NASA calibration



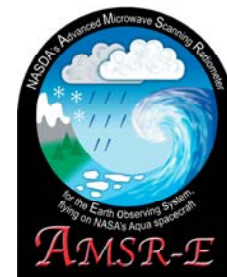
File Naming Conventions (continued)



- Version Number
 - Will be updated any time a change is made to any component of the science software
 - Updated by the TLSCF in the PGE and delivered to the SIPS-GHCC as a part of the updated science software for implementation
 - At the same time, new DAP with the same version number will be delivered
 - The user will always know exactly which version of the software was used to create any product and which version of the DAP to request by simply viewing the file name



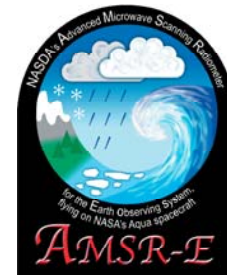
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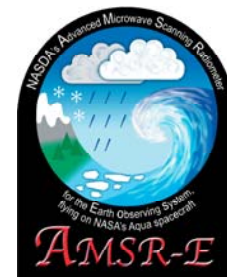
Delivered Algorithm Packages (continued)



- DAP Contents
 - Science software package delivered to SIPS by TLSCF
 - Science software
 - Metadata software
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 - Delivery notes
 - README



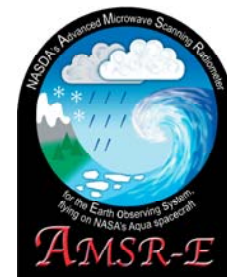
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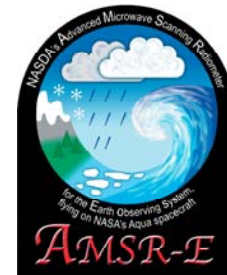
AMSR-E Browse & Quick-look Images



- Browse Images
 - Archived at NSIDC
 - HDF-EOS raster images (ECS requirement)
 - No larger than 1 MB (ECS requirement)
 - Available via ftp from GHRC SIPS and from AMSR-E web page in .png format
- Quick-look images
 - Aid to quality assessment and validation
 - .png format
 - Available from AMSR-E web site as of March 1, 2004



AMSR-E Metadata



- ECS compliant
- Generated and included in each file
- ODL format
- Written as global attribute
- Routines created and maintained by TLSCF



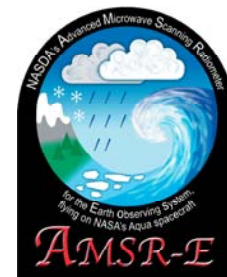
AMSR-E Quality Assessment



- Automatic QA
 - Checking of input and intermediate data during creation of the data product
 - Integral part of science algorithm
 - Varies greatly from algorithm to algorithm
 - Quality flags stored in data file



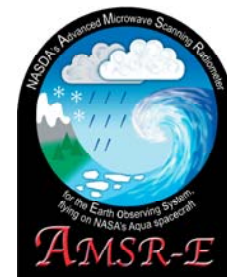
AMSR-E Quality Assessment



- Operational QA
 - Automated QA done immediately following product creation
 - Examination of processing diagnostics (error messages, CPU time)
 - File structure
 - Parameter values
 - Histograms of various parameters
 - Generation of metadata items such as % missing and % out-of-bounds
 - Other items as requested by science team
 - Accomplished through QA software
 - Similar for all algorithms
 - If a product fails operational QA
 - Product is quarantined at SIPS
 - TLSCF notified
 - TLSCF investigates and takes appropriate action (see QA discrepancies)



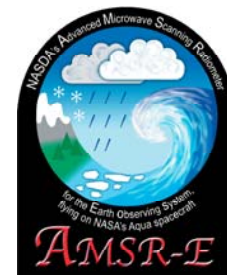
AMSR-E Quality Assessment



- Science QA
 - Post-processing checks
 - Browse and quick-look image reviews
 - QA summary report reviews
 - Monitoring of long term trends in calibration and production data



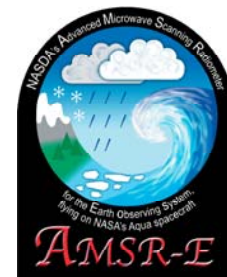
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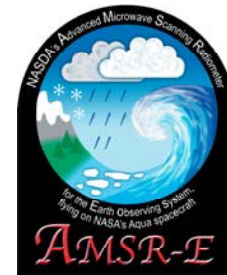
TLSCF AMSR-E Web Pages



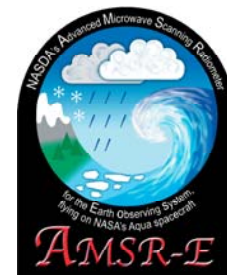
- Location: <http://www.ghcc.msfc.nasa.gov/AMSR>
- Significant updates on data products and file contents now in progress
- “Team only” restricted site
 - Available from Science Team Link
 - User name and password required
 - Latest information on data availability and data access
 - Subsetting request form
 - Open to team use for exchange of information, discussions



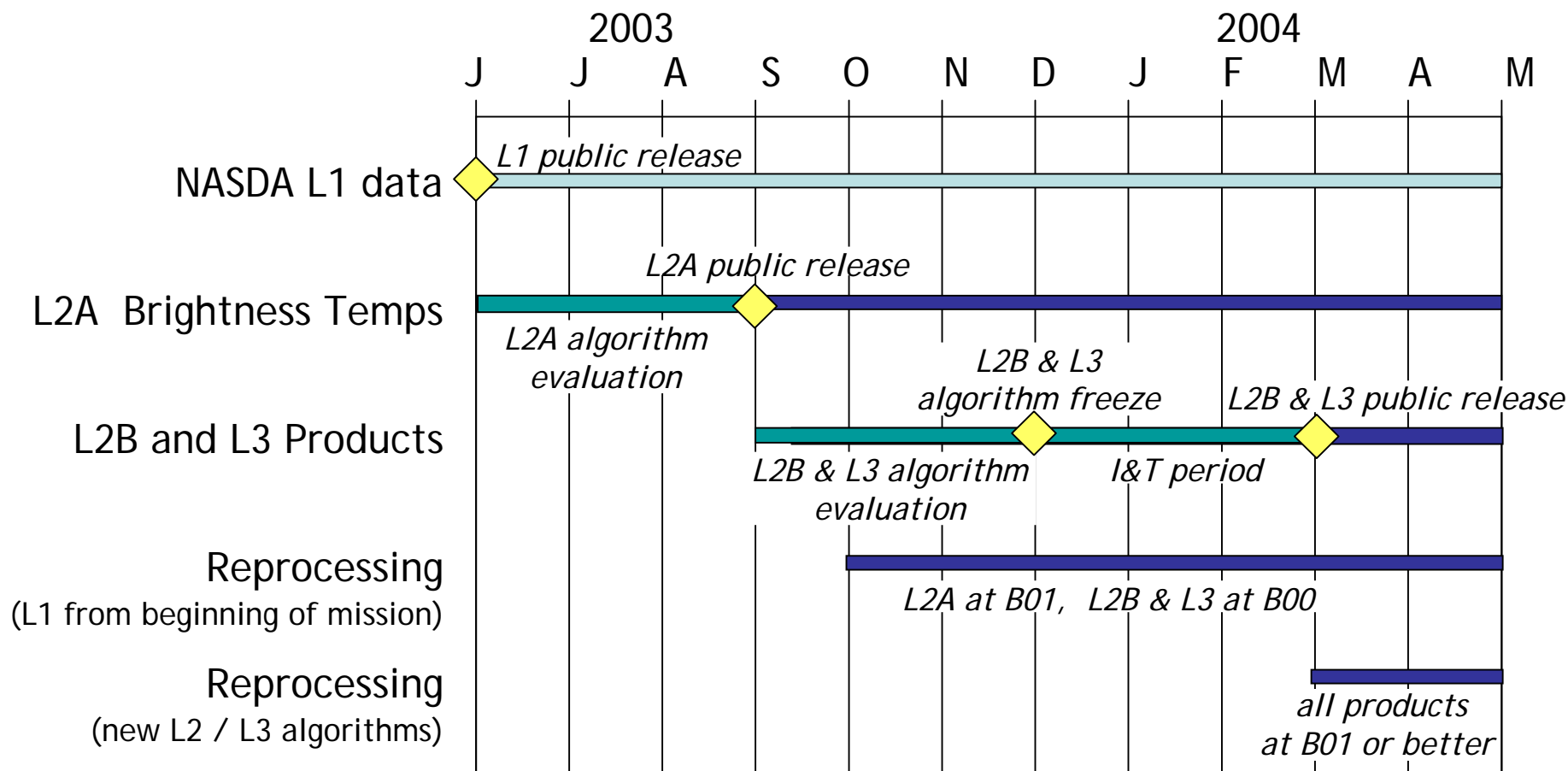
Science Software Schedule



- Expected JAXA L1A reprocessing: June 1, 2004
- L2 & L3 updates are made quarterly
- Updates to science software for March 1, 2004, release are due to the TLSCF NO LATER THAN DECEMBER 1, 2003
 - No exceptions!
 - All updates received at the TLSCF after Dec 1 will be reflected in the version 2 software release scheduled for June 1, 2004



Product Release Schedule

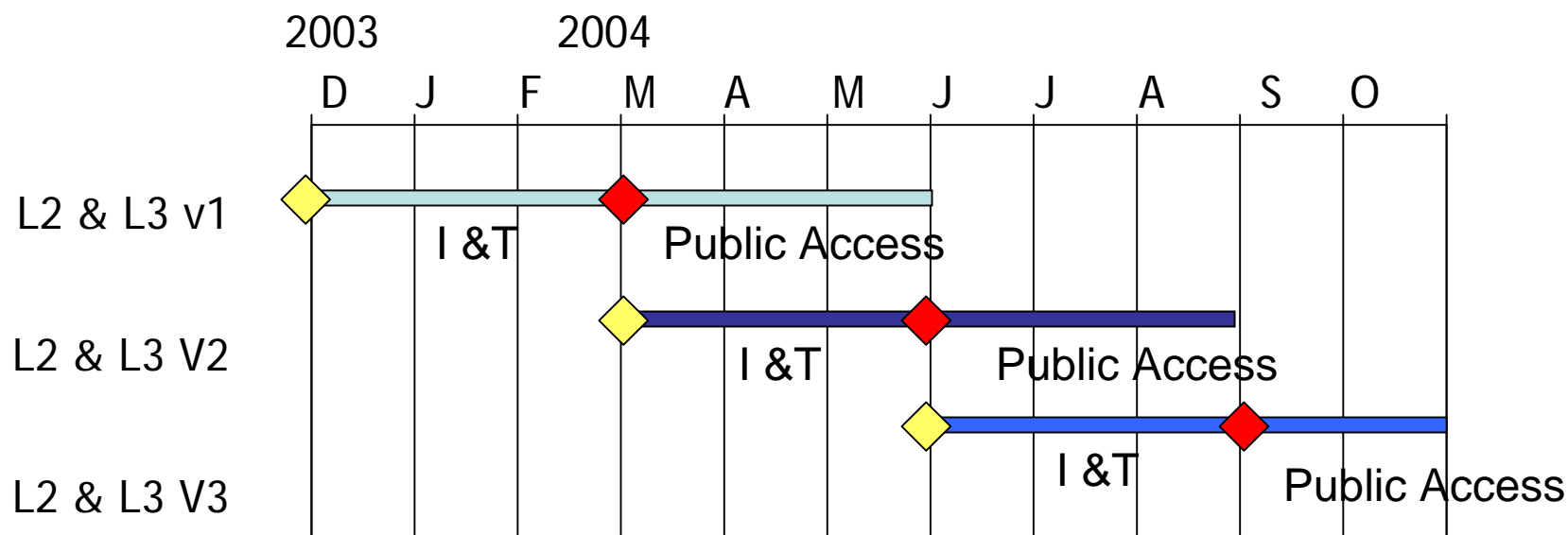
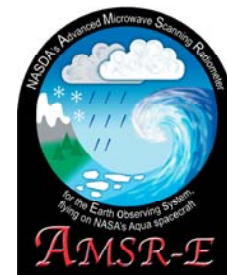


3 August 2004

Dawn Conway, University of Alabama in Huntsville,
AMSRE Lead Software Engineer



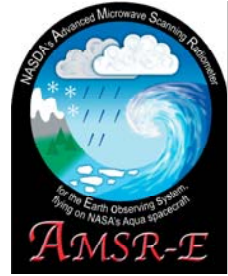
Product Release Schedule



- ◆ Science Software freeze at TLSCF; no subsequent updates implemented until the next quarter
- ◆ L2 & L3 Public Release



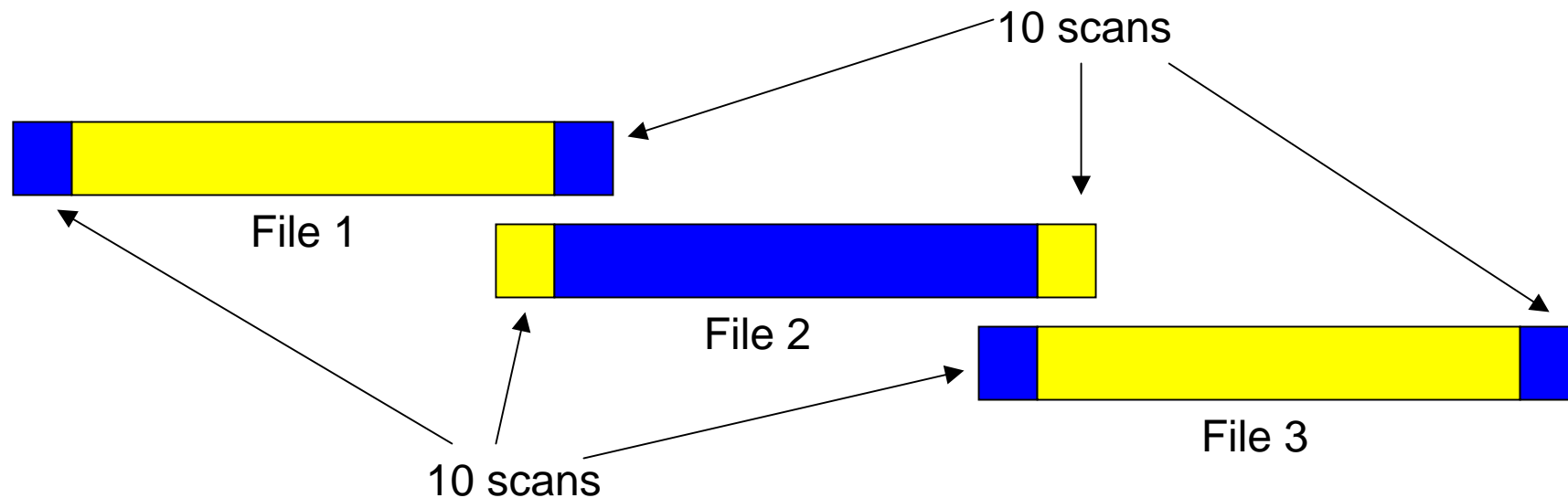
Issues





- Science Teams agreed to $\frac{1}{2}$ orbit, pole-to-pole files (“passes”) with an additional 10 scans at the beginning and 10 scans at the end of each file
 - Definition based on center pixel latitude
 - This facilitates removal of duplicate scans in consecutive files
 - This implies each file will contain the same number of scans



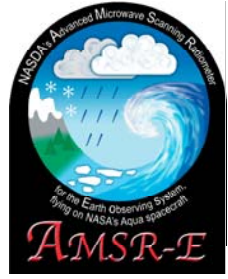
Issues



-  Ascending Scans
-  Descending Scans



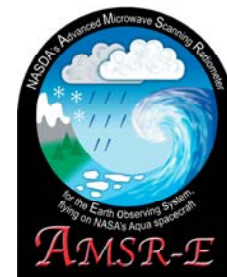
Issues



- Currently Not true $\frac{1}{2}$ orbits
 - Level 2A files have a 1:1 correspondence to Level 1A files
 - There is an overlap of an unknown number of scans between consecutive files
 - Duplicate data is introduced in Level 3 processing, contaminating the results
- Missing data at the beginning or end of a $\frac{1}{2}$ orbit file must be filled with missing data flags for Level 2A and 2B products
 - Maintain correct number of scans in file
 - Facilitates duplicate data removal



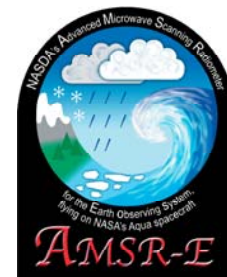
Issues



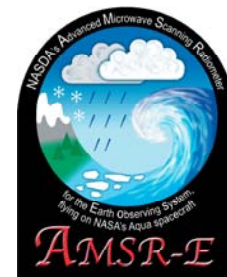
- If a file is missing,
 - the previous file must be filled with missing data flags for the last ten scans
 - the next file must be filled with missing data flags for the first ten scans
 - this is required to maintain the correct number of scans per file
- Due to the impact on the Level 3 standard products, this issue must be resolved prior to public release on March 1, 2004
 - TLSCF & SIPS need time to verify and test the resolution (at least 2 weeks) prior to implementation



Coming Attractions



- Level 2B and Level 3 Standard Products on March 1, 2004
- True $\frac{1}{2}$ orbit, pole-to-pole passes
- Browse and quick-look images on the web
- QA Summaries on the web
- Special Requests
 - Support algorithm and validation teams
 - Additional QA information
 - Quick-look images



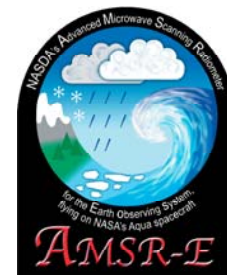
AMSR-E Team Leader Science Computing Facility Science Software Backup Slides

3 August 2004

*Dawn Conway, University of Alabama in Huntsville,
AMSR-E Lead Software Engineer*



Delivered Algorithm Packages (continued)

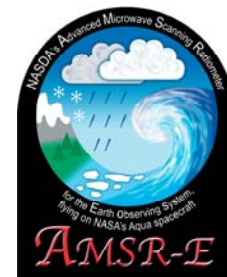


Product Short Name	DAP Name
AE_L2A	AE_L2A_vv_yyyymmdd_dap.tar
AE_Ocean	AE_Ocean_vv_yyyymmdd_dap.tar
AE_Land	AE_Land_vv_yyyymmdd_dap.tar
AE_Rain	AE_Rain_vv_yyyymmdd_dap.tar
AE_RnGd	AE_RnGd_vv_yyyymmdd_dap.tar
AE_DyOcn, AE_WkOcn, AE_MoOcn	AE_OcGd_vv_yyyymmdd_dap.tar
AE_DySno	AE_DySno_vv_yyyymmdd_dap.tar
AE_5DSno	AE_5DSno_vv_yyyymmdd_dap.tar
AE_MoSno	AE_MoSno_vv_yyyymmdd_dap.tar
AE_SI6, AE_SI12, AE_SI25	AE_Sealce_vv_yyyymmdd_dap.tar
AE_Land3	AE_Land3_vv_yyyymmdd_dap.tar

Where vv is the DAP version number and yyyymmdd is the creation date of the DAP.



AMSR-E Browse & Quick-look Images (continued)



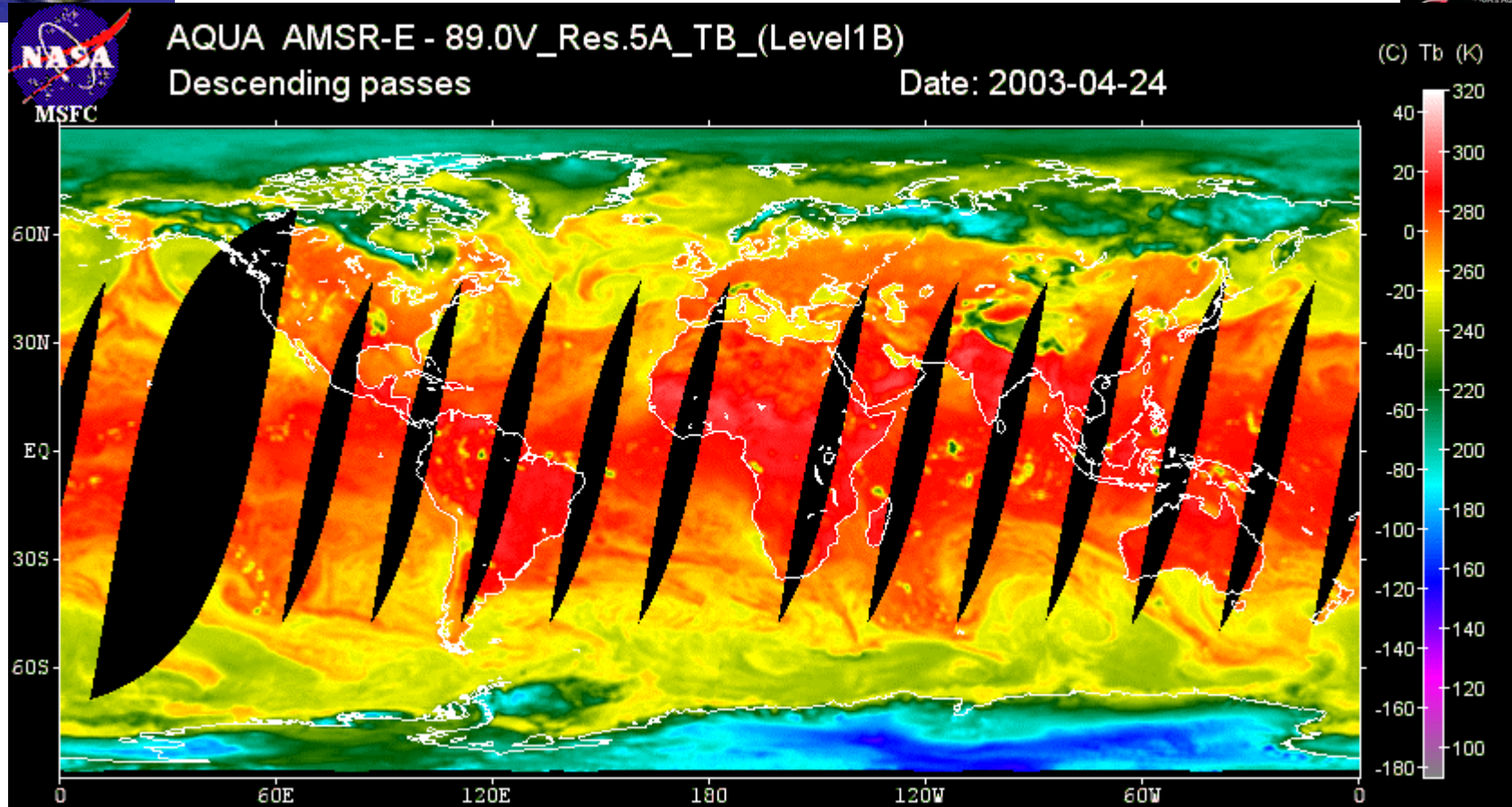
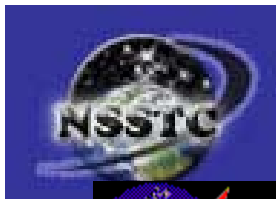
Product	Parameter(s)	Description
L2A	89 GHz H&V TBs	Daily Ascending; Daily Descending
L2 Ocean	SST, wind speed, water vapor, and cloud liquid water	Daily Ascending; Daily Descending
L2 Land	Soil Moisture	Daily Ascending; Daily Descending
L2 Rain	Rain Rate	Daily Ascending; Daily Descending
L3 Ocean	SST, wind speed, water vapor, and cloud liquid water	All passed combined, Ascending, Descending; Daily, weekly, monthly
L3 Snow	Snow water equivalent	Descending only; Daily, 5-day, Monthly



AMSR-E Browse & Quick-look Images (continued)



Product	Parameter(s)	Description
L3 Land	Soil Moisture	Daily Ascending; Daily Descending
L3 12.5 km Sea Ice	Sea ice concentration, 5-day snow depth	All passes combined; Daily
L3 25.0 km Sea Ice	Sea ice concentration, sea ice temperature	All passes combined; Daily
L3 Rain	Rain Accumulation	Land and Ocean separately; Monthly



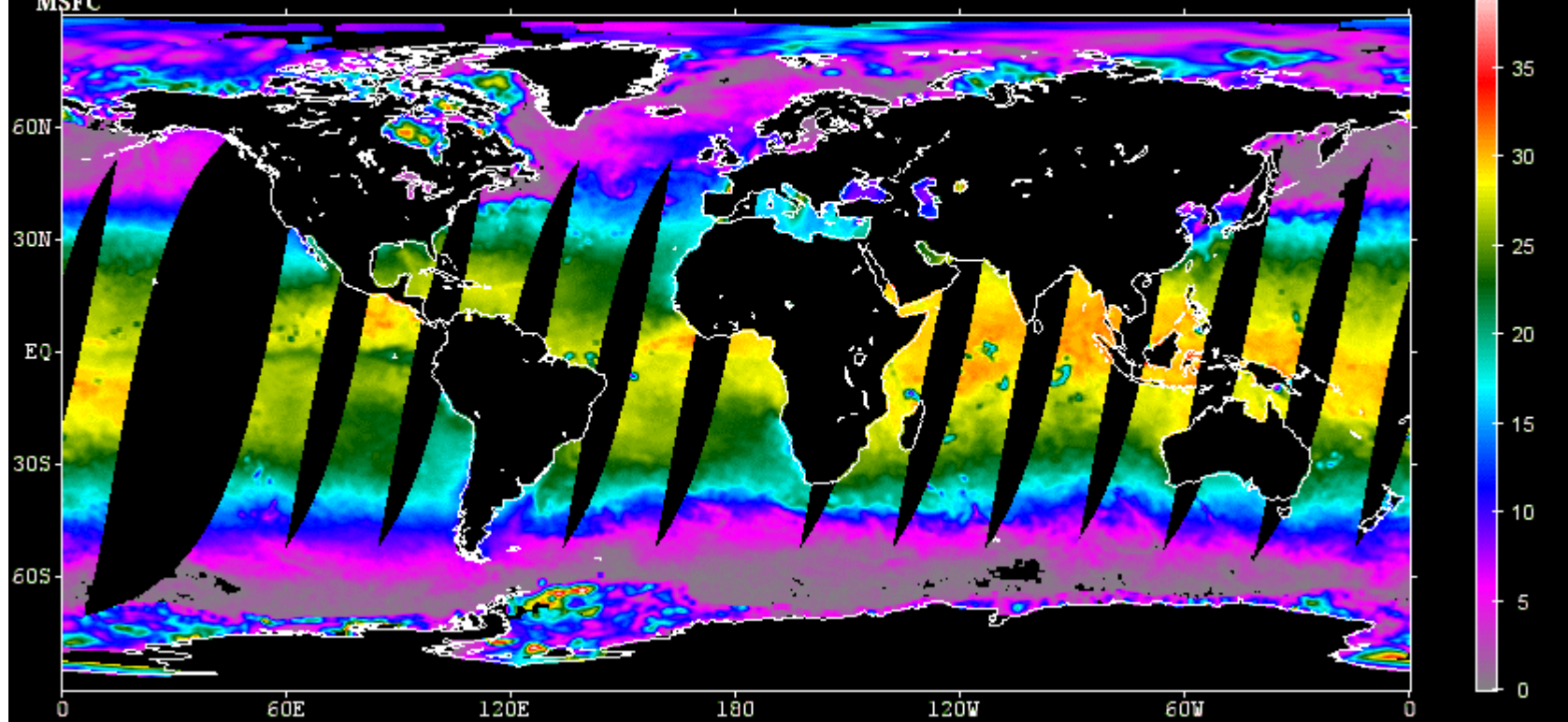
3 August 2004

*Dawn Conway, University of Alabama in Huntsville,
AMSR-E Lead Software Engineer*



AQUA AMSR-E - Low_res_sst
Descending passes

Date: 2003-04-24



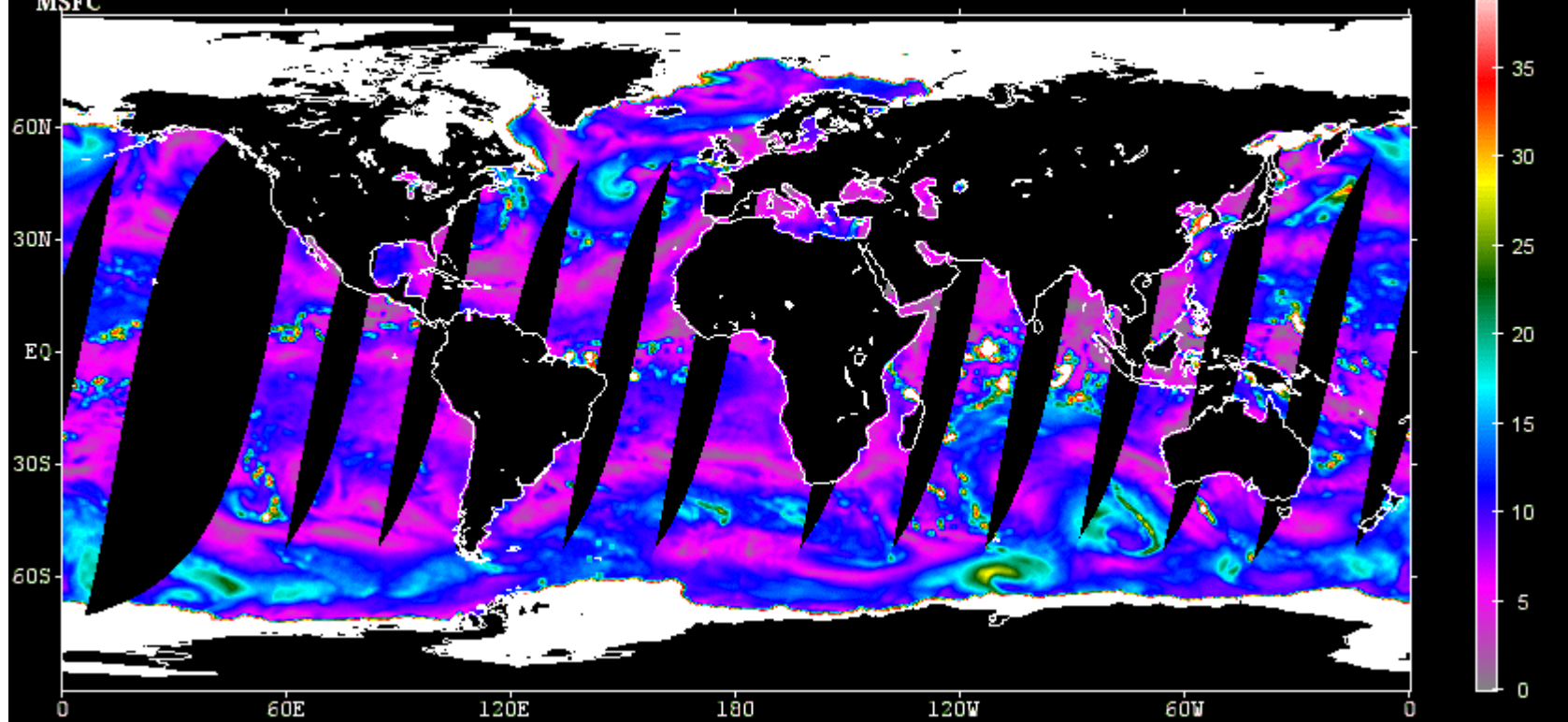
3 August 2004

Dawn Conway, University of Alabama in Huntsville,
AMSR-E Lead Software Engineer



AQUA AMSR-E - Med_res_wind
Descending passes

Date: 2003-04-24



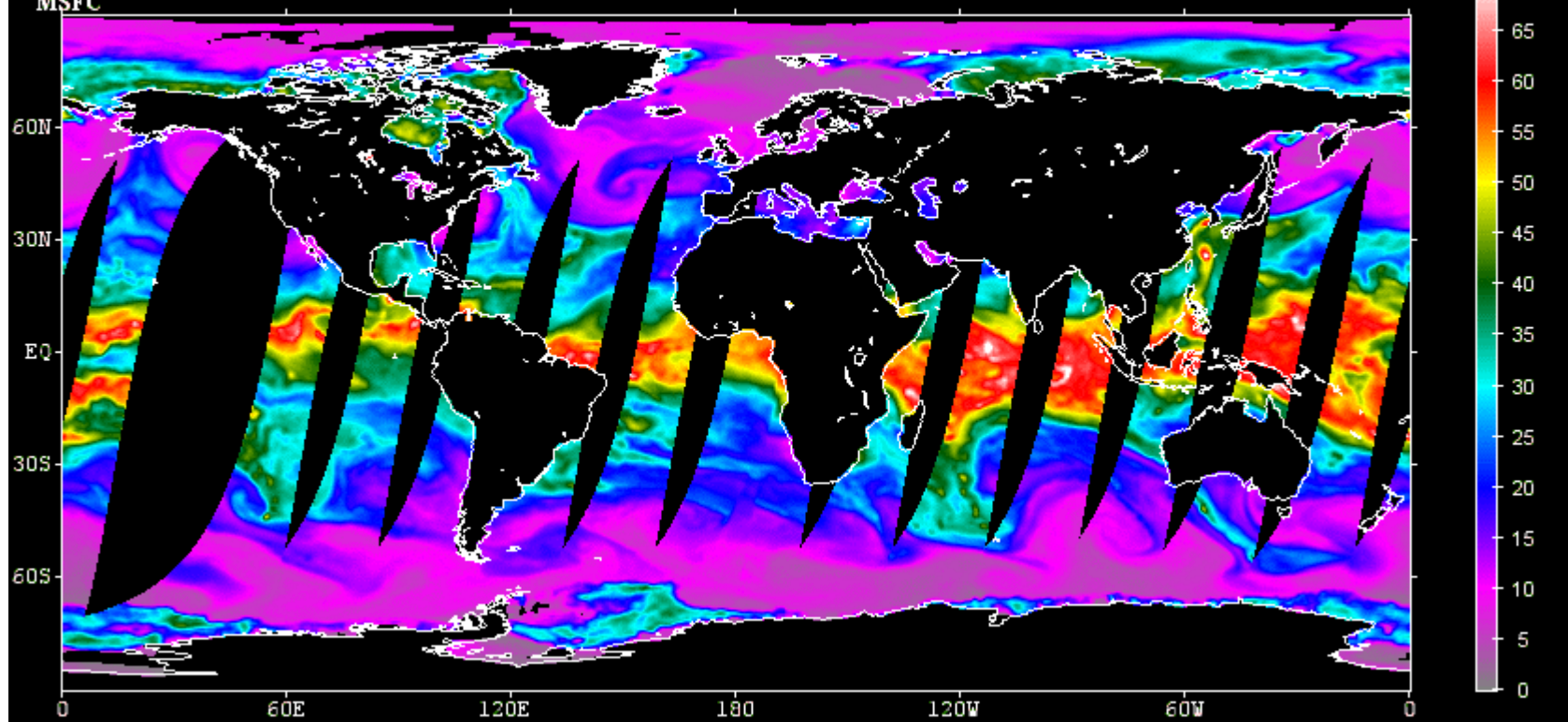
3 August 2004

Dawn Conway, University of Alabama in Huntsville,
AMSR-E Lead Software Engineer



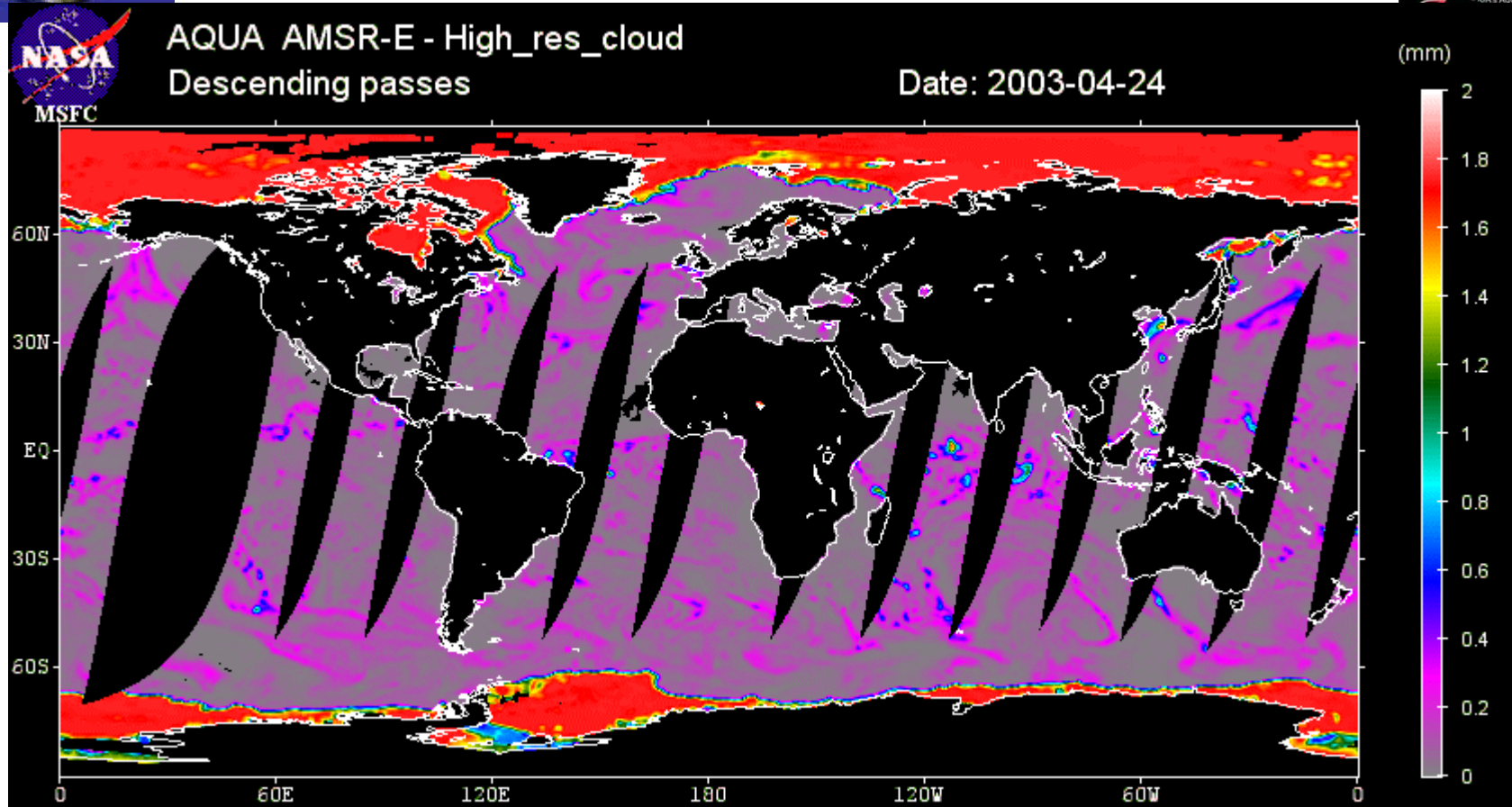
AQUA AMSR-E - Med_res_vapor
Descending passes

Date: 2003-04-24



3 August 2004

Dawn Conway, University of Alabama in Huntsville,
AMSR-E Lead Software Engineer



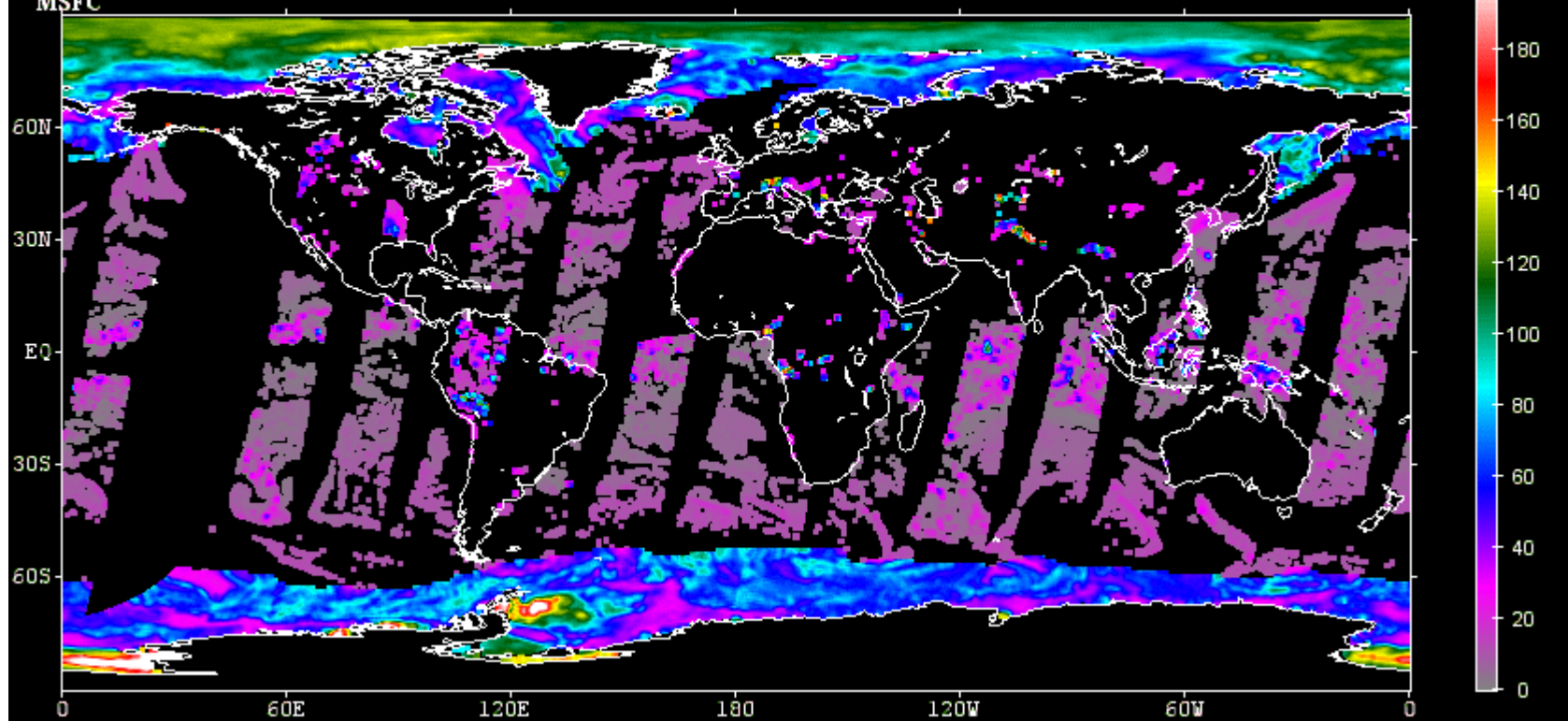
3 August 2004

*Dawn Conway, University of Alabama in Huntsville,
AMSR-E Lead Software Engineer*



AQUA AMSR-E - Rain Rate Descending passes

Date: 2003-04-24



3 August 2004

Dawn Conway, University of Alabama in Huntsville,
AMSR-E Lead Software Engineer



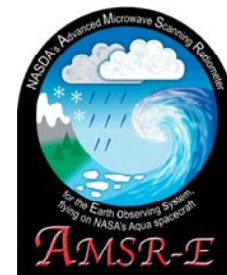
AMSR-E Level 2 Granule Metadata



Name	Description
LocalGranuleID	Filename
ProductionDateTime	Date and time of granule production
AutomaticQualityFlag	Automated QA indicator of granule
AutomaticQualityFlagExplanation	Definition of the usage of automatic QA flag
OperationalQualityFlag	Processing diagnostics
OperationalQualityFlagExplanation	Definition of the usage of the operational QA flag
ScienceQualityFlag	Science data content
ScienceQualityFlagExplanation	Definition of the usage of the science QA flag
QAPercentMissingData	Percent missing data in the granule
QAPercentOutOfBoundsData	Percent out-of-bounds data in the granule
OrbitModelName	Orbit model used to calculate satellite position vectors
StartOrbitNumber	Start orbit number of granule
StopOrbitNumber	Stop orbit number of granule
EquatorCrossingLongitude	The descending equator crossing longitude of the granule
EquatorCrossingTime	Time of the equator crossing: hh:mm:ss.sssZ
EquatorCrossingDate	YYYY-MM-DD
Short Name	ECS ESDT short name associated with this granule
InputPointer	Input file name



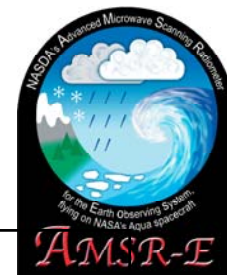
AMSR-E Level 2 Granule Metadata (continued)



Version ID	ESDT VersionID
GringPointLatitude	An array of latitudes and longitudes that define the polygon outlining the granule data swath
GringPointLongitudes	
GringPoint SequenceNo	An array of digits defining the sequence of the latitudes and longitudes used to define the polygon
RangeBeginningDate	YYYY-MM-DD
RangeBeginningTime	Hh:mm:ss.sssZ
RangeEndingDate	YYYY-MM-DD
RangeEndingTime	Hh:mm:ss.sssZ
PGEVersion	Product Generation Executable Version
NominalPassIndex (AMSR-E PSA)	The nominal pass index number for the pass that best describes the spatial location of the granule, where the pass is either the ascending or descending portion of an orbit.
StartPolygonNumber (AMSR-E PSA)	The index number for the first polygon associated with the nominal pass number in the granule.
StopPolygonNumber (AMSR-E PSA)	The index number for the last polygon associated with the nominal pass number in the granule.
Ascending/Descending flag	Indicates if data in the granule were collected during an ascending or descending pass
Measured Parameter	Description of parameter(s) stored in the file



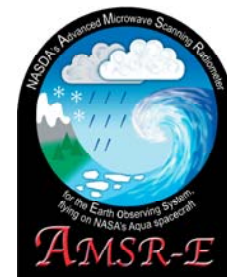
AMSR-E Level 3 Granule Metadata



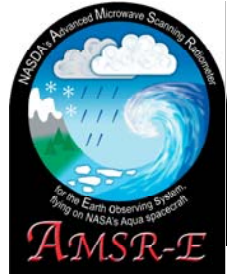
Name	Description
LocalGranuleID	Filename
ProductionDateTime	Date and time of granule production
AutomaticQualityFlag	Automated QA indicator of granule
AutomaticQualityFlagExplanation	Definition of the usage of automatic QA flag
OperationalQualityFlag	Processing diagnostics
OperationalQualityFlagExplanation	Definition of the usage of the operational QA flag
ScienceQualityFlag	Science data content
ScienceQualityFlagExplanation	Definition of the usage of the science QA flag
QAPercentMissingData	Percent missing data in the granule
QAPercentOutofBoundsData	Percent out-of-bounds data in the granule
Short Name	ECS ESDT short name associated with this granule
InputPointer	Input file name
Version ID	ESDT VersionID
WestBoundingCoordinate	Western point of spatial domain bounding box
NorthBoundingCoordinate	Northern point of spatial domain bounding box
EastBoundingCoordinate	Eastern point of spatial domain bounding box
SouthBoundingCoordinate	Southern point of spatial domain bounding box



AMSR-E Level 3 Granule Metadata (continued)



RangeBeginningDate	YYYY-MM-DD
RangeBeginningTime	Hh:mm:ss.sssZ
RangeEndingDate	YYYY-MM-DD
RangeEndingTime	Hh:mm:ss.sssZ
PGEVersion	Product Generation Executable Version
Measured Parameter	Description of parameter(s) stored in the file

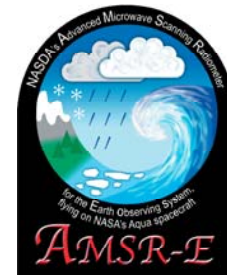


QA Discrepancies

- QA Discrepancies fall into several categories that require different corrective actions:
 - Discrepancy Class 1: The data granule is found to be unacceptable for research use and higher level processing. This may be the result of algorithm failure, corrupted input data, or instrument operation anomalies. Corrective actions include:
 - isolating the cause of failure
 - making necessary revisions to the science software
 - updating the ancillary files
 - reprocessing the affected granules



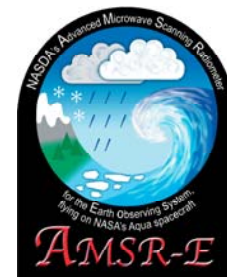
QA Discrepancies (continued)



- Discrepancy Class 2: The data granule is deemed to be acceptable for research use, but changes in QA procedures and criteria should be made. This may include such modifications to QA as:
 - Change in acceptable limits on parameters
 - Change in display projection parameters
 - Change in error or warning message logging standards



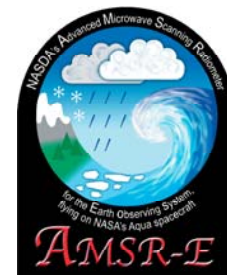
QA Discrepancies (continued)



- Discrepancy Class 3: The data granule is deemed acceptable for research use but changes in instrument operating characteristics are noted.
 - This may indicate the beginning of an instrument problem with possible implications for instrument operations and processing software.
 - The first action taken will be to notify the science team.
 - Subsequent actions may require closer scrutiny of instrument parameters during QA procedures and assessment of the sensitivity of level 2A and higher-level products to the particular changes in instrument performance.



Sample Level 2 Land QA Summary



File name: [AMSR_E_L2_Land_00_200206021305_A.hdf]

File size: 682924

Number of records: 17021

Percent land data: 37

Percent retrievals: 49

Percent retrievals within bounds: 100

-----TB QC Flag-----

-89	-36	-23	-18	-10	-6	0	6	10	18	23	36	89	other
796	0	20	0	60	68	15743	129	9	182	14	0	0	0

-----Surface Type-----

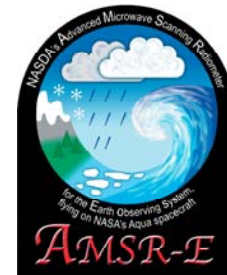
0	10	20	30	40	50	60	70	80	90	other
10	8088	0	72	188	99	12	841	1253	6458	0

-----Soil Moisture-----

In Range	Out of Range	Mean	Std Dev	Min	Max
8923	8098	0.085	0.011	0.030	0.090



Sample Level 2 Land QA Summary (continued)



-----Veg Water Content-----

In Range	Out of Range	Mean	Std Dev	Min	Max
7458	9563	0.88	1.22	0.00	5.00

-----Land Surface Temp-----

In Range	Out of Range	Mean	Std Dev	Min	Max
8361	8660	41.0	14.5	0.0	50.0

-----Inversion QC Flag 1-----

0	10	11	12	20	21	other
8660	8356	5	0	0	0	0

-----Inversion QC Flag 2-----

In Range	Out of Range	Mean	Std Dev	Min	Max
8309	8712	3.4	1.7	1.0	10.0

-----Inversion QC Flag 3-----

In Range	Out of Range	Mean	Std Dev	Min	Max
8361	8660	-20.1	18857.7	-32767.0	32767.0

Passed